

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A method for pacing a heart, comprising:

providing a post ventricular atrial refractory period (PVARP) associated with a pacing timing sequence;

delivering pacing therapy to left and right ventricles using the pacing timing sequence;

~~detecting a disruption of disrupted~~ ventricular pacing during delivery of the pacing therapy;

responsive to detecting disrupted ventricular pacing, modifying the pacing timing sequence to restore the ventricular pacing;

pacing the ventricles using the modified pacing timing sequence; and

avoiding pacemaker mediated tachycardia while pacing the ventricles using the modified pacing timing sequence.

2. (Currently amended) The method of claim 1, wherein detecting ~~the disruption of the disrupted~~ ventricular pacing comprises detecting disrupted ventricular pacing caused a premature ventricular contraction.

3. (Withdrawn – currently amended) The method of claim 1, detecting ~~the disruption of disrupted~~ ventricular pacing comprises detecting disrupted ventricular pacing caused by a transient increase in heart rate above a maximum tracking rate.

4. (Withdrawn – currently amended) The method of claim 1, wherein detecting ~~the disruption of disrupted~~ ventricular pacing comprises detecting one intrinsic atrial depolarization occurring within the PVARP followed by an intrinsic ventricular depolarization.

5. (Currently amended) The method of claim 1, wherein detecting ~~the disruption of the disrupted~~ ventricular pacing comprises detecting an intrinsic ventricular depolarization.

6. (Original) The method of claim 1, wherein modifying the pacing timing sequence comprises adjusting the PVARP.

7. (Original) The method of claim 1, wherein modifying the pacing timing sequence comprises adjusting the PVARP for two or more successive cycles.

8. (Original) The method of claim 1, wherein modifying the pacing timing sequence comprises decreasing the PVARP.

9 -10. (Canceled)

11. (Currently amended) The method of claim 1, wherein pacing the ventricles using the modified pacing timing sequence comprises restoring ~~the~~ ventricular pacing following a premature ventricular contraction.

12. (Currently amended) The method of claim 1, wherein pacing the ventricles using the modified pacing timing sequence comprises restoring the ventricular pacing as an intrinsic atrial rate decreases below a maximum tracking rate.

13. (Canceled)

14. (Withdrawn – currently amended) The method of claim 1, wherein pacing the ventricles delivering the bi-ventricular pacing therapy using the modified pacing timing sequence comprises avoiding pacing hysteresis as an intrinsic atrial rate decreases below a maximum tracking rate.

15. (Withdrawn – currently amended) The method of claim 1, wherein ~~delivering the bi-ventricular pacing therapy~~ pacing the ventricles using the modified pacing timing sequence comprises pacing below an upper rate limit.

16. (Withdrawn – currently amended) The method of claim 1, wherein ~~delivering the bi-ventricular pacing therapy~~ pacing the ventricles using the modified pacing timing sequence comprises implementing a ventricular tracking timing sequence.

17. (Previously presented) The method of claim 1, further comprising:
detecting an intrinsic ventricular depolarization; and
interrupting pacing the ventricles using the modified pacing timing sequence if the intrinsic ventricular depolarization is detected.

18. (Canceled)

19. (Original) The method or claim 1, wherein avoiding the pacemaker mediated tachycardia comprises:

detecting one or more pacemaker mediated tachycardia events; and
inhibiting atrial tracking based on the detection of the one or more pacemaker mediated tachycardia events.

20. (Withdrawn) The method or claim 1, wherein avoiding the pacemaker mediated tachycardia comprises:

detecting a retrograde p-wave; and
inhibiting initiation of a pacing escape interval based on the detection of the retrograde p-wave.

21. (Currently amended) A cardiac rhythm management system, comprising:

a controller configured to implement a pacing timing sequence including a post ventricular atrial refractory period (PVARP), control delivery of a pacing therapy to left and right ventricles using the pacing timing sequence, analyze cardiac signals to detect a disruption of disrupted ventricular pacing and, in response to detection of disrupted ventricular pacing, modify the pacing timing sequence to restore the ventricular pacing, control delivery of pacing to the ventricles using the modified pacing timing sequence, and avoid pacemaker mediated tachycardia while the ventricles are paced using the modified pacing timing sequence.

22. (Withdrawn – currently amended) The system of claim 21, wherein the disruption of ventricular pacing comprises the controller is configured to detect disrupted ventricular pacing if one atrial event occurring occurs within the PVARP followed by an intrinsic ventricular depolarization.

23. (Withdrawn – currently amended) The system of claim 21, wherein the disruption of ventricular pacing comprises the controller is configured to detect disrupted ventricular pacing if two or more atrial events occurring occur respectively within two or more successive PVARPs, each atrial event followed by an intrinsic ventricular depolarization.

24. (Currently amended) The system of claim 21, wherein the controller is configured to detect disrupted disruption of the ventricular pacing comprises if an intrinsic ventricular depolarization is detected.

25. (Currently amended) The system of claim 21, wherein the disruption of the controller is configured to detect disrupted ventricular pacing comprises caused by a premature ventricular contraction.

26. (Previously presented) The system of claim 21, wherein the controller is configured to modify the pacing timing sequence by adjusting the PVARP.

27. (Previously presented) The system of claim 21, wherein the controller is configured to modify the pacing timing sequence by decreasing the PVARP.

28. (Canceled)

29. (Withdrawn) The system of claim 21, wherein the modified pacing timing sequence is configured to avoid pacing hysteresis as an intrinsic atrial rate decreases below a maximum tracking rate.

30. (Currently amended) The system of claim 21, wherein the modified pacing timing sequence is configured to restore the ventricular pacing following a premature ventricular contraction.

31. (Currently amended) The system of claim 21, wherein the modified pacing timing sequence is configured to restore the ventricular pacing following a transient increase in heart rate above a maximum tracking rate.

32. (Currently amended) The system of claim 21, wherein the modified pacing timing sequence is configured to restore the ventricular pacing as an intrinsic atrial rate decreases below a maximum tracking rate.

33. (Withdrawn) The system of claim 21, wherein the modified pacing timing sequence is configured to pace at a rate below an upper rate limit.

34. (Withdrawn) The system of claim 21, wherein the modified pacing timing sequence comprises a ventricular tracking pacing protocol.

35. (Canceled)

36. (Currently amended) A cardiac pacing system, comprising:

means for providing a post ventricular atrial refractory period (PVARP) associated with a pacing timing sequence;

means for delivering ventricular pacing therapy to left and right ventricles using the pacing timing sequence;

means for detecting ~~a disruption of disrupted~~ ventricular pacing;

means for modifying the pacing timing sequence to restore ~~the~~ ventricular pacing in response to detection of disrupted ventricular pacing;

means for pacing the ventricles using the modified pacing timing sequence; and

means for avoiding pacemaker mediated tachycardia while pacing the ventricles using the modified pacing timing sequence.

37. (Withdrawn – currently amended) The system of claim 36, wherein the means for detecting disrupted ventricular pacing comprises further comprising means for detecting one atrial event occurring within the PVARP followed by an intrinsic ventricular depolarization.

38. (Currently amended) The system of claim 36, wherein the means for modifying the pacing timing sequence further comprising comprises means for adjusting the PVARP.

39. (Currently amended) The system of claim 36, wherein the means for modifying the pacing timing sequence comprises further comprising means for adjusting the PVARP for two or more successive beats.

40. (Currently amended) The system of claim 36, wherein the means for modifying the pacing timing sequence comprises further comprising means for decreasing the PVARP.

41 – 42. (Canceled)

43. (Original) The system of claim 36, further comprising means for interrupting the modified pacing sequence if an intrinsic ventricular depolarization is detected during implementation of the modified pacing timing sequence.

44. (Withdrawn) A method for pacing a heart, comprising:

delivering a bi-ventricular pacing therapy using a first pacing timing sequence associated with a post ventricular atrial refractory period (PVARP);
detecting a cardiac event that disrupts consistent ventricular pacing;
adjusting the PVARP;
delivering a modified bi-ventricular pacing therapy using the adjusted PVARP; and
avoiding pacemaker mediated tachycardia during delivery of the modified bi-ventricular pacing therapy.